

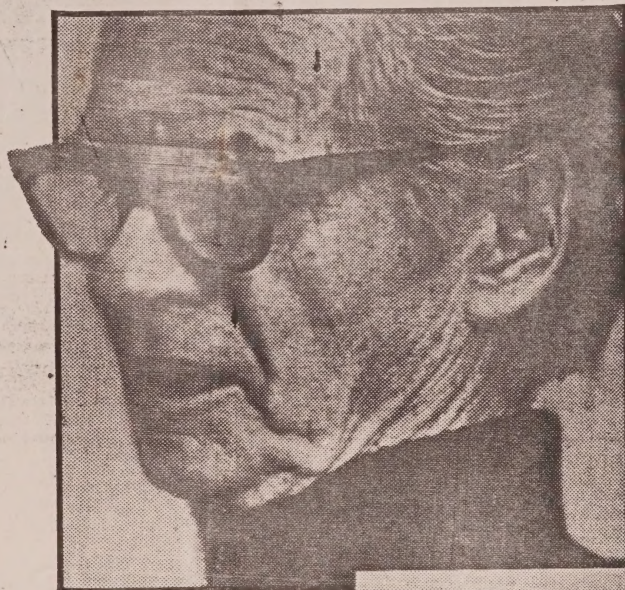
Swept-back
blades

AIR MOVEMENT
RELATIVE TO
PROPELLER

David Suter

Lockheed Electra. By the time the Boeing 707 and McDonnell came out with pure jet engines, the thrust was produced at 10,000 lb. They gave a higher, faster speed up to 600 miles an hour (the Electra) — and never needed twice as much fuel. Engineers redesigned jet engines, not unlike propellers, to sweep air back around the engine. Some of these turbofan engines are thinner. Some have bypass nozzles — that is, six times as fast as the jet unit as goes through the engine. The thrust comes from the by-product of the jet engine.

Skinner Tells Colleagues His Personal Strategies For Managing Old Age



WGBH Educational Foundation

B. F. Skinner

Special to The New York Times

WASHINGTON, Aug. 23 — B. F. Skinner, the 78-year-old patriarch of behavioral psychology, took to the podium at a psychologists' convention here today and gave a first-person report on how to cope with the failing memory and diminished intellectual powers of old age.

The secret, he said, lies in creating a stimulating environment, devising little memory tricks, working fewer hours and giving the brain plenty of time to rest between serious intellectual exertions.

"Leisure should be relaxing," he cautioned. "Possibly you like complicated puzzles, or chess, or other demanding intellectual games. Give them up. If you want to continue to be intellectually productive you must risk the contempt of your younger acquaintances and freely admit that you read detective stories or watch Archie Bunker on TV."

Dr. Skinner's lecture on "Intellectual Self-Management in Old Age" was an offbeat highlight on the opening day of the 90th annual convention of the American Psychological Association. The gaunt, white-haired behaviorist, who has spent most of his professional life at Harvard experimenting with pigeons and rats, today offered himself as "a case history."

It was a rare personal glimpse at

The secrets? A stimulating environment, memory tricks, fewer hours of work, plenty of rest for the brain.

how a renowned scientist deals with the problems of declining powers — a far more touching statement than the typical scientific paper delivered here, discussing "cognitive development" or "intergenerational affinities" in groups of anonymous subjects.

His speech drew frequent laughter and hearty applause from a standing-room-only audience of the young and middle-aged at the Washington Hilton Hotel. Many spectators flocked around the podium afterward to get his autograph on their programs.

The five-day convention, billed as "the world's largest gathering of psychologists," is expected to attract 12,000 to 15,000 participants. They will be confronted with a smorgasbord of catchy topics as seen from the psychological perspective — everything from nuclear war to crime to love and sex, loneliness and grief.

Dr. Skinner is best known for his controversial theory that human behavior is controlled not by free will but rather by what he calls positive and negative reinforcements meted out by culture and environment. He

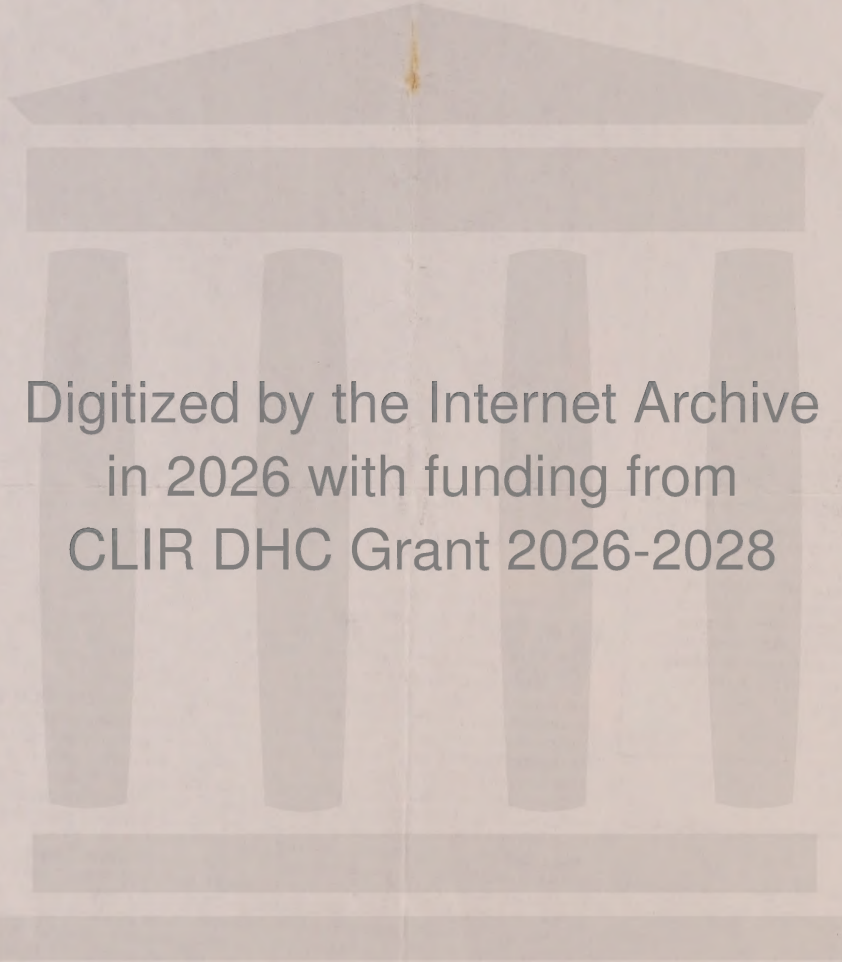
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ools

74 school year, when the Cimarron School District in northeastern New Mexico was hit by the oil embargo. "We're still on it, not for economic reasons but because of what it says about the attitude toward school," said James A. H. of the high school.

of Colorado's 181 districts, 12 more will be experimenting with four-day school years. Seven districts in Minnesota are, and legislation is planned to permit it. In June, the Wyoming board of education authorized the Sheridan County School District in Ranchester to experiment with a four-day school year for 800 pupils.

Continued on Page C7



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Health status and health care utilization

- Chronic conditions are more prevalent among older persons than younger. In 1976, about 39% of older persons were limited in their major activity (working or keeping house) due to such conditions, as compared to only 7% for younger persons.

- In 1972, about 18% of the 65+ group had an interference with their mobility due to chronic conditions—6% had some trouble getting around alone, 7% needed a mechanical aid to get around, and 5% were homebound.

- In 1976, older people had about a 1 in 6 chance of being hospitalized during a year, higher than for persons under 65 (1 in 10). Among those hospitalized during the year, the proportion with more than one stay was greater for older persons than for younger persons (26% vs. 15%) and the average length of stay was about 5 days longer (11.6 vs. 6.9 days).

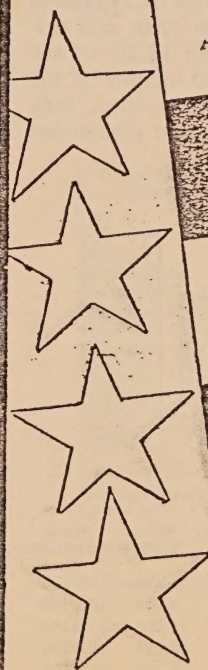
- On the average, older people had more physician visits than did persons under 65 (6.9 vs. 4.7 visits) in 1976, and a higher proportion had visited a doctor within the last 6 months (70% vs. 58%).

What are the costs of health care?

- In 1976, the nation spent \$120 billion for personal health care. About \$35 billion or 29% of this amount was spent for older persons. The per capita health care cost for an older person was \$1,521, nearly three times as much as the \$547 spent for younger adults. Benefits from government programs, including Medicare (\$15.0 billion) and Medicaid (\$5.6 billion), accounted for about two-thirds of the health expenditures of older persons, as compared with three-tenths for adults under 65.

Facts about Older Americans 1978

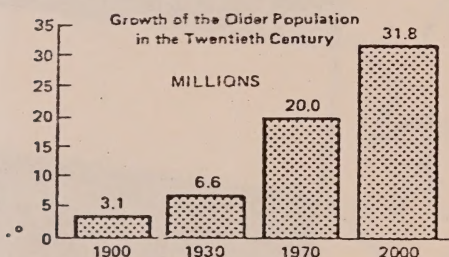
U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Human Development Services
Administration on Aging
National Clearing House on Aging



DHEW Pub. No. (OHDS) 79-20006

How many older Americans are there?

- In 1977, one in every 9 persons in the U.S. was 65+ (23.5 million men and women).
- The proportion of the population 65 years old and over varied by race and ethnic origin: 11% of whites were 65+, 8% for blacks, and 4% for persons of Spanish origin.
- During 1976, about 1.8 million persons reached the age of 65 and 1.2 million persons 65+ died, a net increase of 537,000 older Americans (1,470 per day).
- Between 1900 and 1977, the percentage of the U.S. population aged 65+ more than doubled (4.1% in 1900 and 10.9% in 1977) while the number increased over sevenfold (from 3 million to 23 million).
- At present death rates, the older population is expected to increase 35% to 32 million by 2000. If the present low birth rate persists, these 32 million will be 12.2% of the total population of about 260 million. If the birth rate should continue to decline, they would represent 12.9% of a total population of about 246 million.



The Older Population in the Twentieth Century

Year	Number (000's)	% of Total	Men (000's)	Women (000's)	Ratio Women/Men
1900	3,080	4.1	1,555	1,525	98/100
1930	6,634	5.4	3,325	3,309	100/100
1970	19,972	9.8	8,367	11,605	139/100
1977	23,494	10.9	9,569	13,925	146/100
2000	31,822	12.2-12.9	12,717	19,105	150/100

Where do older Americans live?

- In 1977, about half (45%) of persons 65+ lived in seven States. California and New York had over 2 million, and Florida, Illinois, Ohio, Pennsylvania, and Texas had over 1 million.
- Since 1970, the 65+ group in seven States has grown by more than 30%—Nevada (64%), Arizona (55%), Florida (47%), Hawaii (44%), New Mexico (39%), Alaska (37%), and South Carolina (30%).
- The 65+ group was 12% or more of the total population in 11 States—Florida (17.1%), Arkansas (13.3%), Iowa (13.0%), Missouri (12.9%), Nebraska (12.8%), South Dakota (12.7%), Kansas and Rhode Island (12.6%), Oklahoma (12.4%), Pennsylvania (12.1%), and Maine (12.0%).
- There were 11 States in which over one-fifth of persons 65+ were below the poverty level in 1975—Mississippi (37.0%), Georgia (31.9%), Alabama (31.6%), Louisiana (29.3%), Arkansas (29.1%), South Carolina (26.8%), Tennessee (26.0%), North Carolina (24.7%), Kentucky (22.6%), Texas (22.5%), and Oklahoma (22.1%).
- About 31% of the elderly lived outside the nation's metropolitan areas in 1976, compared to 26% of all other age groups.

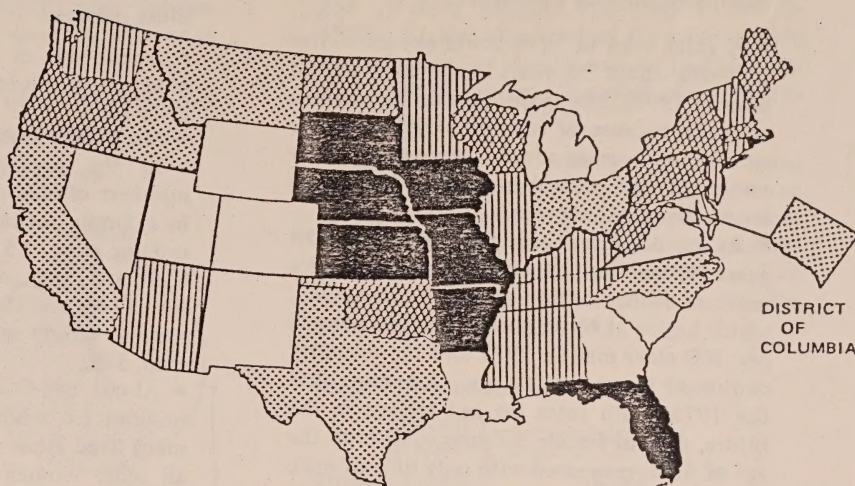
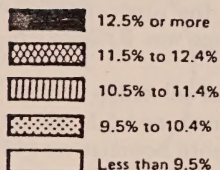
Estimated Population 65+, by State: 1977

State	Number (000's)	Percent of Total Population	Percent Increase 1970-1977	Percent Below Poverty Level, 1975
U.S., Total.....	23,494	10.9	17.6	14.0
Alabama.....	398	10.8	22.6	31.6
Alaska.....	9	2.3	36.9	5.0
Arizona.....	250	10.9	55.3	12.2
Arkansas.....	285	13.3	20.3	29.1
California.....	2,185	10.0	21.9	7.6
Colorado.....	224	8.6	19.7	14.1
Connecticut...	340	10.9	18.2	7.8
Delaware.....	53	9.2	22.0	12.6
District of Columbia...	71	10.3	1.2	13.6

Proportion of Population 65+ Years Old: 1977



HAWAII



DISTRICT
OF
COLUMBIA

U.S.: 10.9%

State	Number (000's)	Percent of Total Population	Percent Increase 1970-1977	Percent Below Poverty Level, 1975 ¹	State	Number (000's)	Percent of Total Population	Percent Increase 1970-1977	Percent Below Poverty Level, 1975 ¹
Florida.....	1,444	17.1	46.5	11.3	North Carolina..	530	9.6	28.7	24.7
Georgia.....	456	9.0	24.8	31.9	North Dakota..	77	11.7	16.0	15.4
Hawaii.....	63	7.1	43.5	9.7	Ohio.....	1,110	10.4	11.7	11.3
Idaho.....	84	9.7	23.9	15.1	Oklahoma.....	349	12.4	16.8	22.1
Illinois.....	1,194	10.6	9.6	10.2	Oregon.....	274	11.5	21.6	11.4
Indiana.....	554	10.4	12.6	11.0	Pennsylvania..	1,432	12.1	13.0	11.1
Iowa.....	374	13.0	7.0	12.6	Rhode Island..	118	12.6	13.7	13.6
Kansas.....	293	12.6	10.5	12.2	South Carolina.	247	8.6	30.3	26.8
Kentucky.....	382	11.0	13.6	22.6	South Dakota..	88	12.7	9.2	17.1
Louisiana....	363	9.3	19.0	29.3	Tennessee....	465	10.8	21.6	26.0
Maine.....	130	12.0	13.7	14.7	Texas.....	1,228	9.6	24.3	22.5
Maryland.....	359	8.7	20.5	11.4	Utah.....	98	7.7	27.0	13.3
Massachusetts.	687,000	11.9	8.4	5.9	Vermont.....	54	11.1	13.5	15.3
Michigan.....	850	9.3	13.3	9.0	Virginia.....	454	8.8	24.1	18.2
Minnesota....	454	11.4	11.4	12.8	Washington...	386	10.6	20.5	9.8
Mississippi...	266	11.1	20.1	37.0	West Virginia..	219	11.8	13.0	19.4
Missouri.....	622	12.9	11.3	16.9	Wisconsin....	534	11.5	13.4	8.6
Montana.....	79	10.4	15.3	13.3	Wyoming.....	35	8.6	15.6	13.2
Nebraska.....	199	12.8	9.2	15.4					
Nevada.....	51	8.0	64.4	7.3					
New Hampshire.	93	11.0	19.6	9.9					
New Jersey....	808	11.0	16.5	8.2					
New Mexico....	98	8.2	39.1	19.5					
New York.....	2,082	11.6	6.7	9.1					

¹Data exclude persons in institutions.

Has life expectancy changed?

- A child born in 1976 could expect to live 73 years, about 26 years longer than a child born in 1900. The major part of the increase occurred because of reduced death rates for children and young adults. More people now reach old age, but then do not live much longer than their ancestors.
- At age 65, life expectancy is 16 years—14 years for men but 18 years for women. As a result of this sex difference in life expectancy, which begins at birth, there were 146 women per 100 older men in 1977 and the disparity continued to grow with age. Assuming that the 1976 death rates do not change in the future, 82% of female children will live to the age of 65 as compared with only 68% of male children.
- More than 1.2 million older people died in 1976, a rate of 54 per 1,000—67 for men and 46 for women. The death rate for the under-65 group was 3 per 1,000.
- Three-fourths of all the deaths of older persons resulted from heart disease (44%), cancer (18%), and stroke (13%).

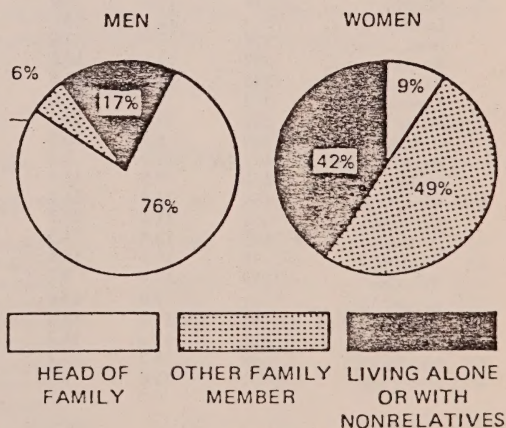
Housing

- Elderly persons headed 14.8 million or 20% of all households in 1976. About 82% of elderly family heads owned their home and 18% rented. Among elderly persons living alone, 59% owned their home and 41% rented. The median value of housing units owned by elderly persons was \$25,300, compared to \$34,000 for homes owned by younger adults. For Black elderly owners, the median home value was \$16,200; for Spanish, \$19,600. One-sixth (16%) of elderly persons in rental housing resided in public or government-subsidized private housing.

What are the living arrangements of older persons?

- About 4% or approximately one million older people lived in institutions of all kinds in 1977.
- Most older persons lived in a family setting.
- In the noninstitutional population, the numbers of older men and older women living in a family setting were about the same (7.6 million men, 7.5 million women), but since there are many more older women than older men (146 per 100), the proportion of older men in family settings was 83% and of women, 58%.
- About one-third of all older persons (7.0 million; 1.6 million men and 5.5 million women) lived alone or with nonrelatives (42% of all older women but only 17% of all older men).
- Within the older population the proportion living in family settings decreases rapidly with advancing age.

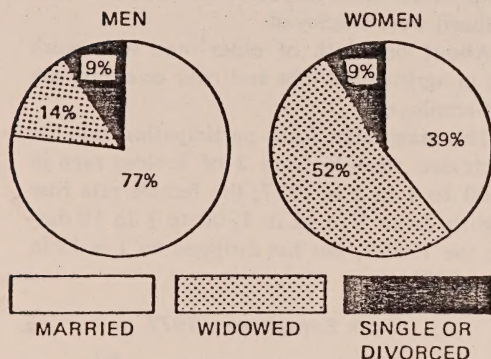
Living Arrangements: 1977
(Noninstitutional Population)



What is the marital status of older persons?

- In 1977, most older men (77%) were married; most older women (52%) were widows. There were over 5 times as many widows as widowers.
- About one-third (35%) of the older married men had wives under 65 years of age.

Distribution of Older Persons
by Marital Status: 1977



What is their level of education?

- Older persons had completed an average of 9.5 years of school in 1977. About 37% had finished high school, and 8% had 4 or more years of college. These figures will increase dramatically in the future as the more highly educated younger generations grow older.

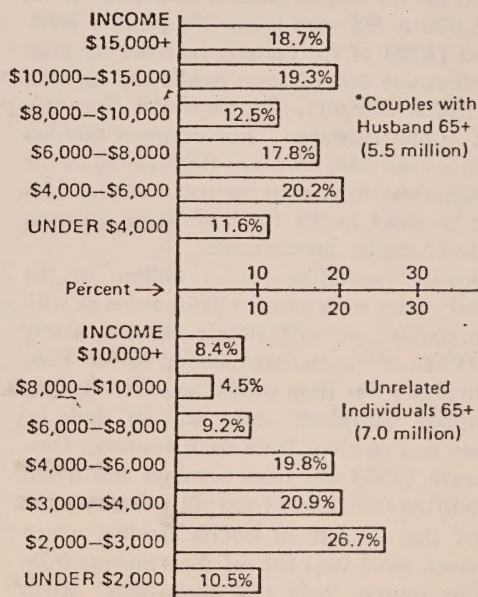
How do they spend their money?

- Elderly families and individuals spent relatively larger amounts of money on housing, food, and medical care than younger consumers in 1973. The largest consumption item was housing (32%), followed by food (25%), transportation (15%), and medical care (10%).

What is the income of older persons?

- One of every nine couples with a husband 65+ received incomes less than \$4,000 in 1976. At the other end of the income scale, one of every five elderly couples had incomes of \$15,000 or more. The median income for these couples was \$8,070.
- The income of elderly persons living alone or with nonrelatives was more skewed to the lower end of the income distribution. Nearly two of every five received incomes under \$3,000 while only one of five received more than \$6,000. The median income for these individuals was \$3,495.

Percent Distribution by Income: 1976



*For couples, data are restricted to 2-person families in order to exclude income received by other family members in larger families.

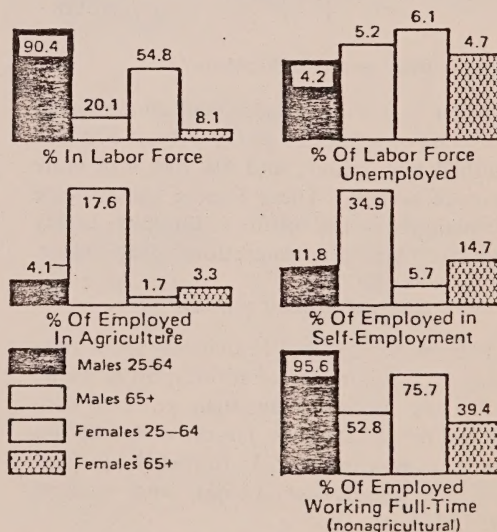
How many older persons live in poverty?

- About 15.0% or 3.3 million persons 65+ were below the poverty level in 1976. Among elderly whites, one of every eight (13%) was poor, but about one-third (35%) of elderly blacks and one-fourth (28%) of elderly Spanish persons were poor.
- The proportion below the poverty level was much higher for elderly persons living alone or with nonrelatives (30%) than for those living in families (8%).
- Persons 65+ who resided outside the nation's metropolitan areas were more likely to be poor (20%) than were elderly metropolitan residents (12%).
- Of the 8.1 million families with a 65+ head, 726,000 or 9% were below the poverty level. Most (82%) of the income received by poor families was derived from public sources such as Social Security, Supplemental Security, and public assistance. For nonpoor families with a head 65+, only one-third (34%) of the income was from such sources. About 37% was received in the form of wages, salaries, and self-employment income.
- About two-thirds or 2.1 million of the elderly poor were persons living alone or with nonrelatives. As with elderly families, nearly all (93%) of the income received by 65+ poor individuals was from public sources. Among nonpoor individuals, only 46% of their income was received from such sources. One-seventh (15%) was from earnings and about two-fifths (39%) was from all other sources.
- Of the 4.2 million elderly families which received more than half of their income from public sources, only 15% were poor. However, about 39% of the 5.0 million elderly individuals who received over half of their income from these sources were below the poverty level.

How many older persons work?

- About 2.9 million or 13% of older people were in the labor force—either working or actively seeking work—in 1977.
- They make up 3% of the U.S. labor force.
- One-fifth of the older men (1.8 million) and about 8% of the older women (1.1 million) are in the labor force.
- About 5.1% of older people in the labor force were unemployed. The balance (2.8 million) were employed.
- About one-sixth of older men who work are in agricultural jobs and over one-third are self-employed.
- The male labor force participation rate has decreased steadily from 2 of 3 older men in 1900 to 1 in 5 in 1977; the female rate rose slightly from 1 in 12 in 1900 to 1 in 10 during the 1950's, but has dropped to 1 in 12 in the 1970's.

Work Experience: 1977



NOTE: Charts drawn at different scales.

COMPANY BACKGROUND

Lifeline Systems, Inc., was founded in 1978 by Andrew S. Dibner, Ph.D. Dr. Dibner, is an Associate Professor of Psychology at Boston University, and is a recognized authority in rehabilitation and gerontology. He conceived the idea of a communications response system which allows people who might otherwise be in nursing homes, special care centers, or hospital facilities to live independently.

Through 1978, substantially all the business activity was in connection with a three year, \$640,000, research grant to study Lifeline. This grant was awarded by the Department of Health, Education and Welfare to the Hebrew Rehabilitation Center for the Aged in Roslindale, Massachusetts. Because of the HEW project and substantial programs across the country, Lifeline Systems, Inc. has over the past four years developed experience in the quality control of equipment, emergency response center training and management, Lifeline user's instruction, recruitment of community emergency responders, interface with telephone equipment, and liaison with various levels of government.

The Company has concluded that it is important for the Emergency Response Center to be based with health service providers in the community. As a result, Lifeline is being sold only to hospitals and agencies. Lifeline programs have now been installed throughout the country.

Fig. 1. Palmore's Facts on Aging Quiz.

- T ☒ F (1) The majority of old people (past age 65) are senile (i.e., defective memory, disoriented, or demented). ✓
- T ☒ F (2) All five senses tend to decline in old age. ✓
- T ☒ F (3) Most old people have no interest in, or capacity for, sexual relations. ✓
- T ☒ F (4) Lung capacity tends to decline in old age. ✓
- T ☒ F (5) The majority of old people feel miserable most of the time. ✓
- ☒ F (6) Physical strength tends to decline in old age. ✓
- T ☒ F (7) At least one-tenth of the aged are living in long-stay institutions (i.e., nursing homes, mental hospitals, homes for the aged, etc.). ✓ *80%*
- ☒ F (8) Aged drivers have fewer accidents per person than drivers under age 65. ✓
- T ☒ F (9) Most older workers cannot work as effectively as younger workers. ✓
- ☒ F (10) About 80% of the aged are healthy enough to carry out their normal activities. ✗
- T ☒ F (11) Most old people are set in their ways and unable to change. ✓
- T ☒ F (12) Old people usually take longer to learn something new. ✓
- T ☒ F (13) It is almost impossible for most old people to learn new things. ✓
- ☒ F (14) The reaction time of most old people tends to be slower than reaction time of younger people. ✓
- T ☒ F (15) In general, most old people are pretty much alike. ✓
- ☒ F (16) The majority of old people are seldom bored. ✗
- T ☒ F (17) The majority of old people are socially isolated and lonely. ✓
- ☒ F (18) Older workers have fewer accidents than younger workers. ✓
- ☒ F (19) Over 15% of the U.S. population are now age 65 or over. ✓
- ☒ F (20) Most medical practitioners tend to give low priority to the aged. ✓
- T ☒ F (21) The majority of older people have incomes below the poverty level (as defined by the Federal Government). ✓
- ☒ F (22) The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work). ✓
- T ☒ F (23) Older people tend to become more religious as they age. ✓
- ☒ F (24) The majority of old people are seldom irritated or angry. ✗
- T ☒ F (25) The health and socioeconomic status of older people (compared to younger people) in the year 2000 will probably be about the same as now.
- ☒ F (26) *Most people just sell to retirement.* ✗

30+ Best age for a man to marry ✗

39+ Best age for a woman to marry ✗

50+ When most people should become grandparents ↓

17-65 Best age for most people to finish school and go to work

20-65 When most ~~men~~ people should be settled on a career ↓

26-65 When most ~~men~~ hold their "top" jobs

75+ When most people should be ready to retire

20-25 A young man

50-60 A middle-aged man

75+ An old man

15-25 A young woman

45-60 A middle-aged woman

70+ An old woman

When a man has the most responsibilities

When a man accomplishes most

When a woman has the most

responsibilities

When a woman accomplishes most

30-60 A good-looking woman

25-45 " " " men

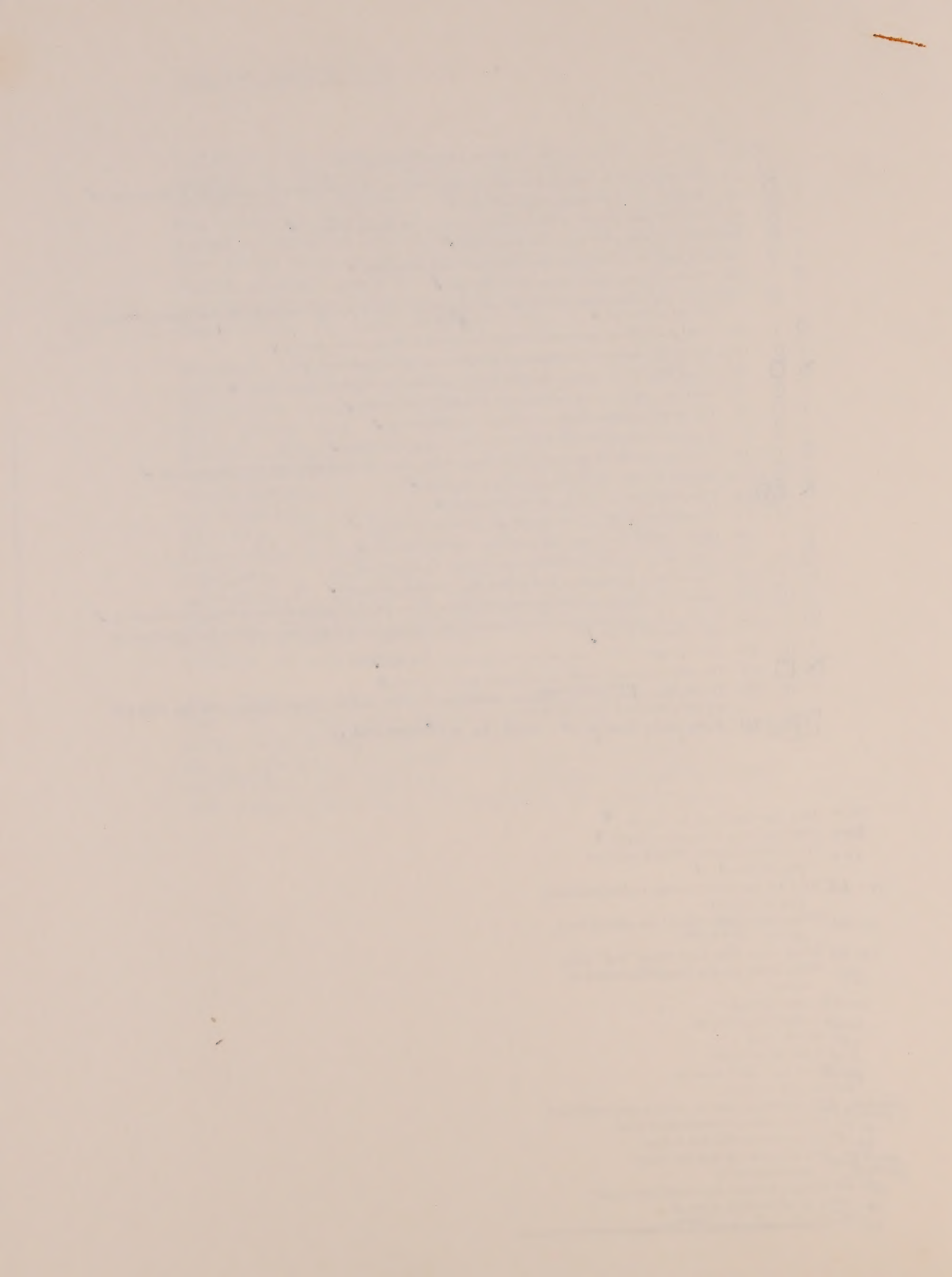


Table II

General Population Characteristics

	1960		1970	
	<u>SMSA</u>	<u>Somerville</u>	<u>SMSA</u>	<u>Somerville</u>
Total population	2,589,301	94,697	2,753,700	88,773
Absolute Change 1960 - 1970	—	—	+ 164,399	- 5,913
Percent Change 1960 - 1970	—	—	+ 6.35%	- 6.25%
Major Ethnic Groups (% of total population in each group)				
Negro	3.0%	.36%	4.60%	.79%
Foreign born	12.37	16.07	9.91	15.00
Total Foreign stock	41.81	50.31	35.44	43.54
Italian stock	7.83	14.35	6.98	13.13
Canadian stock	10.17	13.00	7.82	9.56
Irish stock	7.13	10.67	5.34	7.45
Percent of population in households	96.1%	98.1%	96.3%	96.0%
Percent of population in group quarters	3.9%	1.9%	3.7%	2.0%
Population per household	3.23	3.28	3.09	3.00
Number of families	640,526	24,400	661,650	22,176

Petereence

S 300-12

from: Community Development Program (1977)
(2 vols). City of Somerville

Table III
Residential Mobility

	1960		1970	
	<u>SMSA</u>	<u>Somerville</u>	<u>SMSA</u>	<u>Somerville</u>
All persons 5 years & over	2,317,570	84,125	2,535,734	81,158
Percent in same house 5 years or more	55.5	<u>57.7</u>	58.7	<u>80.9</u> ✓
Percent who moved during the last 5 years	44.5	42.3	41.3	39.1
From other parts of the U.S.				
Central cities of SMSA	12.4	4.8	8.0	2.2
Other parts of SMSA	21.1	30.8	13.2	24.1
Outside SMSA	7.4	3.7	8.6	4.5
From abroad	1.5	1.6	2.0	3.10
Not reported	2.1	1.4	4.5	5.2

Table IV.

Age Composition
(Percent of total population in each age bracket)

<u>Ages</u>	<u>1960</u>		<u>1970</u>	
	<u>SMCA</u>	<u>Somerville</u>	<u>SMCA</u>	<u>Somerville</u>
0 - 5	10.51	11.15	7.93	8.43
5 - 9	9.23	8.38	9.14	8.31
10 - 14	8.36	7.85	9.50	8.58
15 - 19	7.10	7.06	9.09	8.15
20 - 24	6.08	7.40	9.80	10.20
25 - 29	6.03	6.91	6.77	7.78
30 - 34	6.54	6.56	5.19	5.13
35 - 39	6.75	6.04	5.25	4.72
40 - 44	6.46	5.87	5.93	5.20
45 - 49	6.17	5.95	5.94	5.38
50 - 54	5.81	5.65	5.60	5.43
55 - 59	5.28	5.54	5.10	5.45
60 - 64	4.74	4.75	4.55	4.89
65 +	10.88	10.81	11.25	12.15

Table - V

Income Distribution
(Percent of total families in each income bracket)

Income	1969		1963	
	SMSA	Somerville	SMSA	Somerville
\$ 0 - \$ 1,000	2.37	3.07	1.57	1.77
\$ 1,000 - \$ 1,999	3.63	3.69	1.69	1.89
\$ 2,000 - \$ 2,999	5.02	5.09	2.80	3.42
\$ 3,000 - \$ 3,999	7.13	8.09	3.16	4.31
\$ 4,000 - \$ 4,999	10.12	12.85	3.58	4.59
\$ 5,000 - \$ 5,999	13.45	15.84	4.05	5.23
\$ 6,000 - \$ 6,999	11.99	13.71	4.64	6.63
\$ 7,000 - \$ 7,999	10.52	10.98	5.57	7.43
\$ 8,000 - \$ 8,999	8.30	7.60	6.43	8.80
\$ 9,000 - \$ 9,999	6.14	5.25	6.60	7.78
\$10,000 - \$11,999			13.60	14.45
\$12,000 - \$14,999	14.17	10.22	16.15	16.00
\$15,000 - \$24,999	5.06	.27	22.42	14.19
\$25,000 - \$49,999			6.39	2.03
\$50,000 - and over	2.04	.27	1.28	.17
Median Family Income	\$6,687	\$6,024	\$11,449	\$9,595

Table VI

Employment and Occupation Characteristics

	1960		1970	
	<u>SMSA</u>	<u>Somerville</u>	<u>SMSA</u>	<u>Somerville</u>
Number of all workers	1,010,609	38,582	1,122,516	36,660
A. Place of employment:				
• Percent of all workers who are employed inside SMSA	91.1	93.4	88.0	90.0
- in Boston C.B.D.			7.1	6.7
- in Boston Other	40.5	36.6	26.2	23.8
- in Remainder Of Suffolk County	1.8	0.6	2.4	1.3
- in Cambridge	6.3	15.6	6.4	21.5
- in remainder of Inner Middlesex	10.4	32.0	5.8	22.0
- in Outer Middlesex	11.6	6.1	17.6	10.6
- in Inner Norfolk	6.0	1.3	6.3	1.6
- in Outer Norfolk	4.1	0.3	5.4	0.7
- in Essex County	9.3	0.7	9.3	0.3
- in Plymouth County	1.2	0.1	1.5	0.1
Percent who work outside SMSA	3.4	2.0	4.5	2.3
Percent Not Reported	5.5	4.6	7.4	8.8
B. Means of Transportation:				
- Percent of workers who travel by private auto	55.7	46.7	67.0	55.5
- Percent who use Railroad	1.5	0.1	7.9	7.9
- Subway	12.6	19.1		
- Bus	9.5	18.3	11.5	24.8
- Walked	10.8	10.2	9.9	9.5
- Worked at home	2.8	0.8	1.8	0.7
- Other	1.5	0.9	2.0	1.6
- Not Reported	5.6	4.3	N/A	N/A
C. Occupation (percent of total employed in each occupational group)				
Total Employed	1,023,725	39,275	1,130,474	37,391
Professional	10.1	8.2	10.3	11.7
Managerial	3.1	4.5	3.0	4.3

Clerical	12.7	22.3	22.3	26.3
(percent female)	(69)	(58)	(74)	(71)
Sales	8.0	5.8	7.7	5.7
Craftsmen	13.1	14.4	11.6	13.4
Operatives	16.5	24.3	12.2	20.0
Private Household	1.5	0.5	0.7	0.3
Service Workers	8.9	9.7	11.9	13.7
Laborer (approx. equal terms)	3.6	4.4	3.4	4.6
Not reported	6.6	5.3	--	--

Although Boston and Middlesex County continued to provide the bulk of employment opportunities for Somerville residents, there was a clear trend towards job location in Cambridge. In light of the changing population characteristics and employment location, it is not surprising to find that private auto usage remained below prevailing norms in the SMSA and bus usage well above.

SYNOPSIS OF PROPOSED ACTIVITIES 1978

Somerville has taken as its major policy to provide "quality living in a quality environment" for its residents. This is translated into various objectives; physical development, housing improvements, increased job opportunity, and expansion of the City's tax base.

To meet those objectives, and to restore confidence in the City of Somerville, and to provide for low and moderate income families, the following will be implemented in the current program year.

1. East Somerville is taken as the target area, Census Tracts:

3514	-	49%	low & moderate income	
3515	-	70%	"	"
3501	-	52%	"	"
3502	-	50%	"	"
3511	-	42%	"	"
3513	-	46%	"	"
3512	-	50%	"	"

Reasons for selecting East Somerville as the target area are that three (3) major projects are proposed for the area:

- | | | |
|--|-----------|-------------------|
| - Dr. James Bryant Manor (\$3.3m.) | 134 units | Census Tract 3514 |
| - Cobble Hill Development (\$10m.) | 255 units | Census Tract 3515 |
| - First National Stores, Inc.
(potential shopping mall) | | Census Tract 3501 |

All the activities mentioned in the application except those set aside for economic development, are concentrated in these areas which are heavily populated by low and moderate income families, and the activities planned will primarily be of benefit to low and moderate income residents.

These activities consist of providing street reconstruction

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...on of United Technolo-
Windsor Locks, Conn.,

...would like more
sweepback, Mr. Sievers said, "drives
structural engineers crazy."

The heart of the problem is that propellers move at supersonic speeds long before the plane they propel. When a plane is at Mach 0.8 — four-fifths the speed of sound — propeller tips may be well beyond sonic speeds, since their rotary motion augments their forward velocity. At such speeds, ordinary propellers continuously shed a shock wave from each blade, causing inefficiency and a tremendous amount of noise.

The very thin swept-back blade now

engineers to design for noise cancellation, in which sound waves out of step with each other can add up to less, not more, noise than either wave alone.

Models with two-foot blades have passed a series of wind-tunnel tests and over the last year have been flown on a Lockheed JetStar. The propellers were mounted on top of the aircraft's fuselage and operated at 40,000 feet and 600 miles per hour. The main purpose was to check the noise level.

Robert S. Baron, manager of the flight tests at the Dryden facility here, reported that the propeller noise reached levels of 135 to 140 decibels.

...testing."

However, Mr. Sievers said, the blade velocity will not be supersonic on takeoff and climb, because the forward speed of the airplane is low then. Moreover, the propeller will deliver more thrust at low speeds than jets do, so the plane will reach high altitudes faster. Further, the comparatively low-pitched noise of the propeller is attenuated more by distance than the shriek of a pure jet. As a result, NASA scientists expect planes with the new propellers to be less of a nuisance to people on the ground than present jets

...single aircraft powered by
propanes and capable of flying 1,700
miles nonstop. Such planes, the com-
pany said, could be delivered to air-
lines as early as 1992 — just when, Mr.
Sievers said, 3,000 to 4,000 intermedi-
ate-sized (100-to 180-passenger)
planes will be needed to replace obso-
lescent DC-9's, 727's and 737's.

By then, however, American manu-
facturers may have competition.
France, Japan and the Soviet Union
are also experimenting with advanced
propellers, an old idea whose time just
may have come again.

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Skinner Tells His Strategies for Handling Old Age

Continued From Page C1

has sometimes been called "fascistic" for suggesting that societies might improve human behavior through reinforcement, much as laboratory animals are conditioned to perform certain tasks.

But when he talked about such reinforcements today they seemed a benign way to ward off the "decay and rot" of old age. Much of what we call aging, he said, is not an inexorable biological process, but a change in the physical and social environment. As vision, hearing and taste fade, and erogenous tissues grow less sensitive, the elderly become bored, discouraged and depressed. They no longer receive powerful reinforcement from the environment, and fewer things seem worth doing. But that can be changed, he said. Foods can be highly flavored, pornography can be used to extend sexuality into old age, those who can't read can listen to book recordings.

But aging scholars, he lamented, face an additional special problem: "It is characteristic of old people not to think clearly, coherently, logically or, in particular, creatively." Dr. Skinner acknowledged that he now

finds it harder to "think big thoughts" without losing the thread from one part of a chapter to another. The remedy for that, he suggested, is a rigid outline that constrains against "senile nattering and inconsistencies and repetition."

"One of the more distressing experiences is discovering that a point you have just made, so significant, so beautifully expressed, was made by you in something you published a long time ago," Dr. Skinner said, but added that one can promote new thoughts by moving into a new field or acquiring a new intellectual style. The problem is "not so much how to have ideas as how to have them when you can use them," he added. Typically, they pop up in the middle of the night and are forgotten when you need them. So, the minute you get a thought, jot it down or dictate it into a recorder before it escapes.

The same tactic works well if you're one of those who hears the weatherman warn of rain and then 10 minutes later leaves, forgetting the umbrella. Dr. Skinner's solution: Hang the umbrella on the doorknob the minute you hear the weather report.

Many an aging scholar stops working and waits for the well-deserved

kudos, Dr. Skinner said, and others try to hold a restless audience with name-dropping and personal reminiscences. "I have been guilty of a bit of that name-dropping myself, and I have been wallowing in reminiscence lately in writing my autobiography. The trouble is that it takes you backward. You begin to live your life in the wrong direction."

His solution was to tackle broader intellectual issues than he had previously confronted. On Wednesday, in fact, Dr. Skinner will mount the podium to discourse on "Why Are We Not Acting to Save the World?"

Many aging scholars lack Dr. Skinner's ability to find an audience. Students and colleagues are remote, invitations to speak dry up and the scholar finds himself spending more and more time with people uninterested in his field. That can be mitigated, Dr. Skinner said, by organizing small discussions, if only in groups of two. But beware of the flatterers, he cautioned: "If you have been very successful, the most sententious stupidities will be received as pearls of wisdom, and your standards will instantly fall."

Dr. Skinner's talk was one of many on aging. Although the first major American book on the psychology of

old age was published 60 years ago, as recently as 1975 Robert N. Butler, in his Pulitzer Prize-winning book on the aged in America, reported that virtually all professional groups "give scant attention to the mental health needs of older people." That neglect is being rectified, judging from this year's convention. There are sessions on the emotional and psychological processes of aging, mental health services for the elderly, religion and the aging, depression in old age, critical life events for older adults and problems of retirement, among others.

On Thursday, Bernice L. Neugarten of Northwestern University's School of Education will deliver one of the major addresses — on "Successful Aging." Dr. Neugarten believes that America is moving toward an "age-irrelevant society" in which people remain vigorous far longer than before and do things at 70 or 80 that they would not have done 30 years ago.

"We ought to drop the term 'old,'" she said. "I once suggested the terms 'young-old' and 'old-old,' to differentiate old people who are vigorous and healthy from old people who are ill."

Phillip M. Boyley

